The Mining Journal

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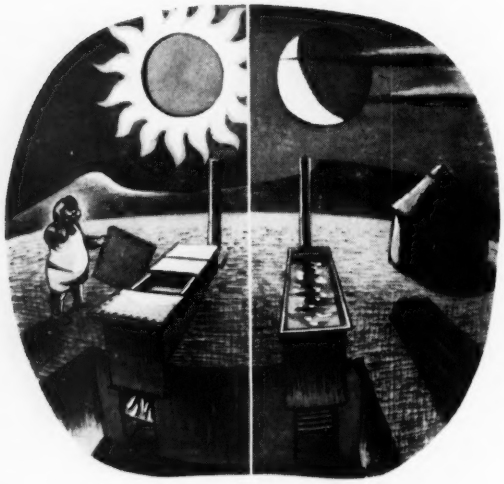

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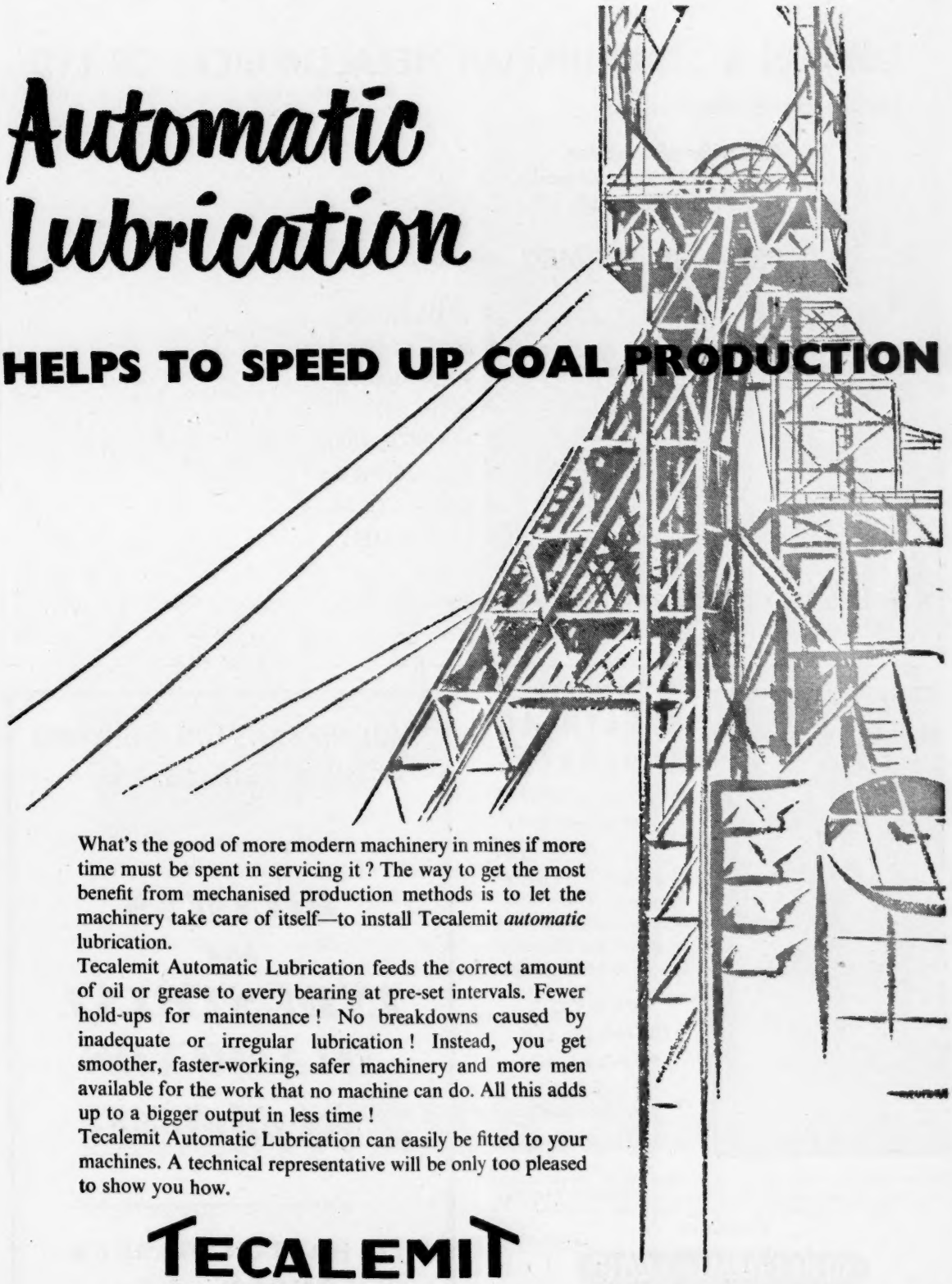

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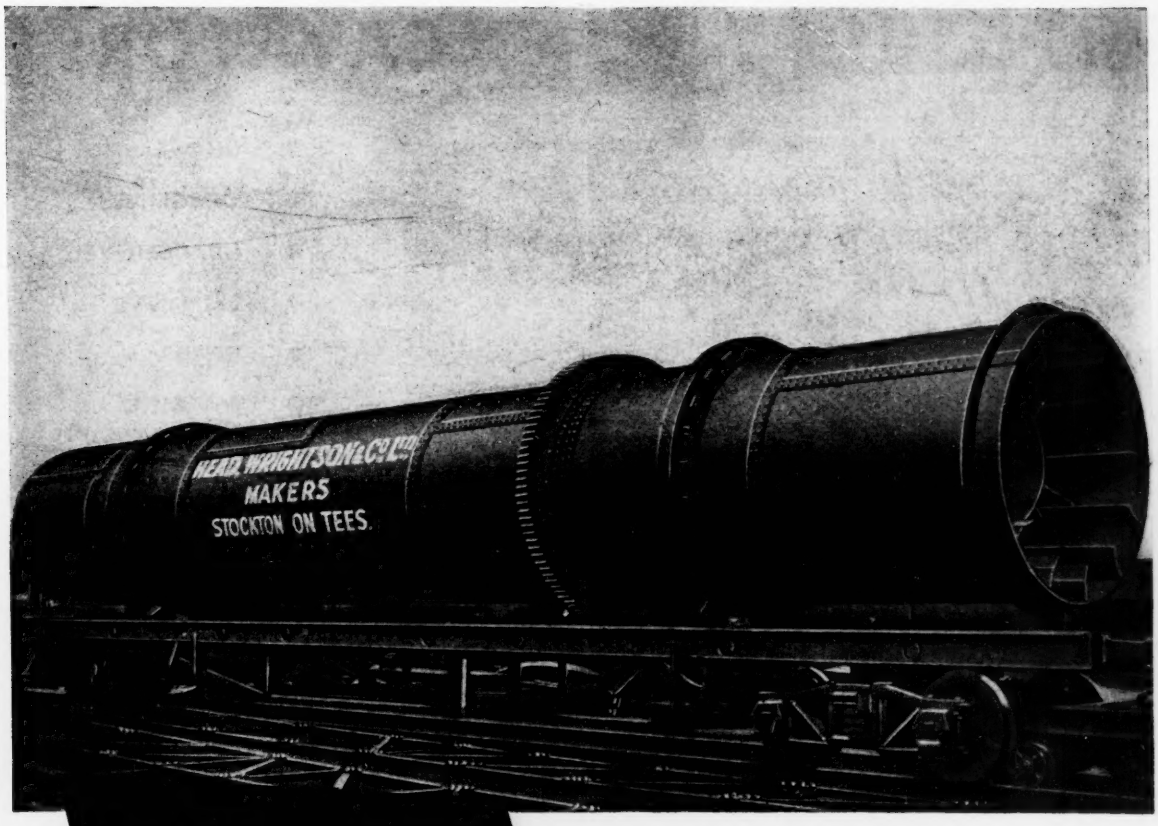

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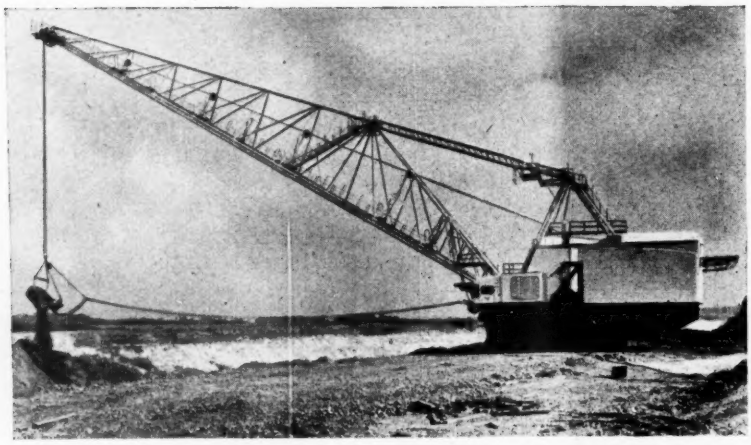

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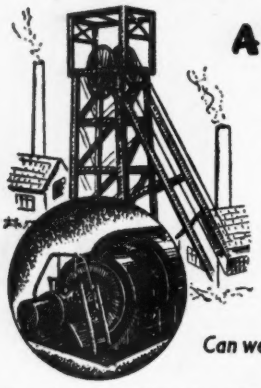

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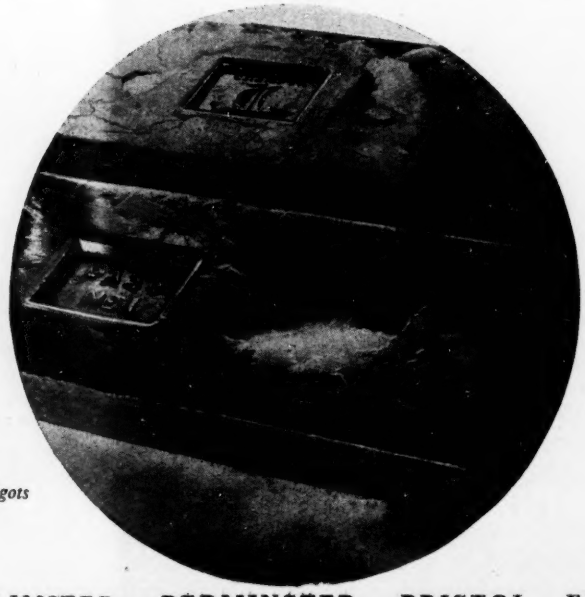

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NOTES AND COMMENTS

The Changing Pattern of Production in Southern Rhodesia

Gold, which for so many years was the mainstay of the Southern Rhodesian mineral industry, has been gradually losing its primacy and last year, according to the Report of the Government Mining Engineer, Mr. F. Elliott, had to yield pride of place to asbestos, with aggregate values of £6,519,916 and £6,651,975 respectively.

This change was due primarily to the exceptional world demand for base minerals which, as a Western American publication recently put it, are paid for in 50 per cent paper dollars as are all other commodities, except gold. Unfortunately for the precious metal, pegged to the pre-war value, wages, supplies, and all costs show steady increases corresponding to the depreciations in the value of world currencies, and though the output of gold last year showed a small increase to 496,731 f.oz. as compared with 486,907 f.oz. in 1951, the Report concludes that " with the present conditions of shortage and high costs of unskilled African labour, higher increased working costs, and curtailment of development and exploration work there are bound to be substantial falls in gold output in the near future." Indeed, even in the current year a reduction of some 12,500 f.oz. was estimated for at the time the Report was written last March. The phenomenon, usually indicative of a decline in gold mining, of smaller crushings of higher grade ore appears from the statistics given which show an overall recovery of 3.77 dwt. per s.ton from 2,638,547 milled as compared with 3.55 dwt. from 2,739,956 s.tons in the previous year. The decline was particularly evident in the smaller mines producing under 10,000 f.oz. annually. Last year there were 11 mines producing above this figure accounting for over half the total output of the Colony, whereas the total number of gold mines in operation was 380, the number having dropped during 1952 by 96.

Without drastic changes in the economic position of gold mining the Government Mining Engineer says it would appear impossible for many of the present small producers, and in fact some of the larger ones, to remain in production for an extended period. Emphasis is laid on the position of the second class producers—5,000-10,000 oz.—from which any newcomers into the top class must come. The group is said to be in a bad way and forced to pick the eyes of the properties which has raised the grade regularly from 2.64 dwt. in 1945 to 5.28 dwt. per s.ton last year. Should working costs continue to rise, as appears likely, the number of producers together with the output will, Mr. Elliott believes, rapidly decline in the next few years.

The picture is very different when we turn to study base metal mining. As already noticed, asbestos has taken first place as regards the value of the various mineral products of the Colony, with a total value of £6,651,975, an increase of just under £1,200,000 on the year. The output was 84,834 s.tons, about 5,000 tons more than the previous best output achieved in 1949, so it will be seen how much of the increase in value was due to the rise in prices. For the current year the value of the output is expected to be slightly lower. The chief producing district was Bulawayo, where the Turner and Newall group, including Shabani, Nil, and Croft mines together with smaller workings, accounted for 54,822 tons of fibre. Next in importance came the Gwelo and Fort Victoria districts which produced 22,692 s.tons. Here there are several strong financial corporations actively interested including the Johns Manville Corporation, which finally decided to enter the Mashaba area and formed a new company which took over the Temeraire, Shashi, and Rosie Cross mines and was negotiating for the Shimala mine.

At the Temeraire and Shimala properties, a very large mine should be established, equipped for large scale production on the most modern mechanized lines. Actually the Rhodesian and General Asbestos Corporation was the major producer last year being responsible for 89 per cent of the output of the Fort Victoria district. During the year three new mines were established in the Mashaba area. As is happening in other minerals, the big modernized companies are tending to squeeze out the small operators, as they are better situated for meeting market demands and equipped for the production of higher grade material. Labour is short and will become more so as new mines come into production and in many cases new producers have over valued the grade of their mines and their final products have not satisfied consumers.

Figures of chromite production increased enormously, with a total of 861,839 s.tons compared with 330,989 in 1951, but this increase is more apparent than real as last year 506,159 tons stockpiled were included in the total output. Rhodesian mines have carried large stocks for a considerable time and omitting the stockpile figures now in-

cluded, last year's output would appear to have been 355,680 s.tons. As a result of high prices and the inclusion of the stockpile in the year's total, values rose to £4,279,440 as compared with £1,530,998 in the previous year. The principal producing district was Gwelo with a total of 605,648 s.tons including stockpiles. Increased chromite mining activity has been mainly on the Great Dyke where the African Chrome Mines and Vanadium Corporation are expanding as fast as the railway truck position permits. High grade metallurgical chrome was located on the Great Dyke in the Gwelo district, where the Madindi Base Metals, Windsor Chrome, and the Pons Claims are coming into increased production.

The experimental Feoch concentrating plant of Rhodesian Mining Enterprises was in full operation during the whole of the year producing fine chromite from the soil bordering the Great Dyke. The Vanadium Corporation of America is said to have developed a new type of smelting plant which smelts these concentrates satisfactorily so that the insistence on lumpy metallurgical chrome is disappearing. Two further plants are also projected.

The output of tungsten concentrates shows the next largest increase on the year with an output of 430 s.tons (as against 235 s.tons), and an increase in value of £220,009 at £513,135, but the fall in values this year is expected to have a marked adverse effect on future output. Two North American companies have taken options on properties.

Production of coal from the Wankie Colliery rose by 285,772 s.tons to 2,821,221 s.tons, but this was well below the estimated demand and still more under the company's estimates of production.

The labour situation continues difficult, especially with the large number of new properties drawing on the supply. The total number of natives at work averaged 61,030 last year as against 60,688 in 1951 and the average monthly wage rose from 49s. 3d. to 57s. per head. The efficiency of the native is said to be improving, notwithstanding which costs continued to rise and wages, food, and supplies generally offer little hope of reduction. This condition falls particularly hardly on the small worker.

Some French Prospecting and Development Projects

The Annual Report of the Fédéracion des Chambres Syndicales de Minerais et de Metaux Bruts gives some particulars of development schemes now in hand and their anticipated output of minerals, in Metropolitan and Colonial France.

In iron ore the first stage of exploitation at the Conacry iron ore mines in French Guinea should be reached either this year or early next with production at an annual rate of 1,200,000 tonnes of hard ore, but investigations will be necessary to determine whether the softer deposits can be utilized. At Fort Gouraud, in Mauritania, another iron ore deposit will be systematically prospected by a company formed for the purpose. At the Ouenze deposit in Algeria boring and plant installations are in progress. As regards manganese, little change in the output is expected from Morocco over the next few years, but an important project is under examination in the Franceville area of Gabun, French Equatorial Africa.

Copper deposits at Akjoujt, Mauritania, are to be explored by a mixed government and private company. Deposits of less importance are under consideration at Bou-Skour and Ouein in Morocco, Ain-Barbar and Cavallo in Algeria, and in the Mindouli-M'Passa region in French Equatorial Africa.

As regards tin, as is to be expected there is little to report. The Société Nantaise des Minerais del 'Ouest is endeavouring to reach the output scheduled at Abaratz as well as prospecting in the surrounding area. Prospecting is also to be continued at the Air Massif in French West Africa.

Interest in bauxite outside Metropolitan France is being displayed in French Guinea, where deposits on Iles de Los are being worked and may produce 330,000 tonnes in the current year. A project of some magnitude for working bauxite deposits at Kindia in French Guiana and for processing the ore to alumina is under study, with a possible outlay of some 60,000,000,000 francs. Extensive bauxite deposits have been noted at Kaw, south east Cayenne in the same colony. The administration of the cobalt mine at Bou-Azzer in Morocco is being replanned to facilitate the technical reorganization and obtain a bigger extraction from the deposits.

Work has begun on new tungsten deposits at Montredon in the Department of Tarn, as well as in Morocco, and on various lead-zinc propositions, the most important of which on the Moroccan-Algerian frontier is already in production. It is hoped to increase the tonnage and quality of the refined ferro-nickel now being produced in New Caledonia.

Attention has also been directed to non-metallic deposits, more particularly phosphate deposits, at Thies, in Senegal, which next year should yield some 150,000 tonnes. A start is to be made also in production in an area south of the province of Constantine, in Algeria, where it is estimated that by beneficiation 75 per cent material should be recoverable. The deposits, which with reserves are estimated to contain some 500,000,000 tonnes, could replace the Kouif deposits when these are exhausted. It is estimated that the necessary plant and equipment may cost around 7,000,000,000 francs.

Mexico

(From a Correspondent)

Jalisco, August 26.

Mexico is planning the revitalization of abandoned mines and, to this end, important mineral deposits in the State of Veracruz, Guanajuato, Coahuila, Nuevo Leon, Durango and Mexico will undergo exhaustive studies by the National Institute for the Investigation of Mineral Resources. This work, to be undertaken in four months, will cover eight major points, according to Raúl de la Peña, head of the Institute.

Studies of minerals of the El Chico, Real del Monte, Pachuca, Zimapan and El Doctor mines in the Veracruz-Guanajuato zone (predominantly silver) will be undertaken.

Exploratory crews will range over a large area from Concepcion de Oro and Mazapil in Zacatecas, and covering the Marina del Jurasico Superior basin where phosphorite deposits have been encountered. This is a tremendous zone that covers part of Coahuila, Nuevo Leon and Durango and hopes are high that a major strike may be made.

A detailed study will be made of iron and coal mines in the Zacualtipan region in the State of Hidalgo. At the express demand of the Department of National Economy and the Government of the State of Coahuila, the Salina de Viesca Basin will be explored. It is claimed initial prospecting uncovered existence of sodium salts, manganese, potassium, bromine and iodine.

The San Pedro de Gallo region in Durango, where coal layers are said to exist at a depth of scarcely 30 feet, will be probed. The Zacualpan, Mexico, area will be explored to probe mineral possibilities and in Tlacolulan, Veracruz, a check will be made of a report of the Tlacolulan Coal Company which insists coal deposits are "abundant" in this region. Deposits of bauxite will also be sought in various States.

Thailand's Mineral Resources

This article, giving a brief survey of Thailand's mineral resources, is based principally on reports presented to the Regional Conference on Mineral Resource Development held in Tokyo earlier this year under the auspices of the United Nations Economic Commission for Asia and the Far East.

The office of the Thai Geological Survey has been a part of the Royal Department of Mines since its establishment in 1891 under the old name of Royal Department of Mines and Geology. Despite the title, little geological work was done in those days, the principal function of the Department being the supervision of mining concessions in the southern tin fields and the collection of revenues from mineral production. Interest in geological operations was aroused in 1921 when Prince Kamphaengbej, as Commissioner of the Royal State Railways, engaged Wallace M. Lee, an American petroleum geologist, to investigate the possibility of developing mineral fuels for the railway's steam locomotive. One Thai mining engineer was assigned to work with Wallace Lee. He became so interested in the work that he was transferred from the Royal State Railways to the Royal Department of Mines to take charge of geological work, a position which he held until his death in 1942. No systematic survey was attempted, his principal functions being to identify mineral specimens and give advice on geological problems.

In 1941, the present Royal Department of Mines was formed with the Thai Geological Survey as one of its four Divisions. It was not till 1946 that staff could be recruited and a long-term programme could begin. In 1949 the Government invited the U.S. Government to send three geologists to Thailand to undertake, in co-operation with geologists of the Royal Department of Mines, a reconnaissance study of the known mineral deposits of the country. The result of the study was published in the form of a joint report by both countries. At present the Thai Geological Survey is receiving help from M.S.A. in the form of both technical assistance and equipment. The first reconnaissance survey was scheduled for completion in 1950, but owing to the change in policy of the Government, new projects on fuel exploration were given priority.

TIN

Tin is the most important product of Thailand's mining industry and has been worked for centuries. The deposits occur in association with igneous rock of acidic type, especially granite, which extends throughout the country. It has been won mainly from placers which abound in the granite foothill regions of Southern Thailand. Very little work has been done to win tin from the lodes. It is impossible to say what quantity has been extracted since mining began, but records show that since 1932 about 163,000 tons of metallic tin have been produced. Though old placers are being worked out, there are still many virgin deposits in the inaccessible part of the country that may some day become large producers. Moreover, technological progress is enabling tin ore to be worked under the sea, a clamshell dragline mounted on a pontoon being used by the Tromal Company in Phuket Bay. It is considered, however, that the rich hydrothermal or pegmatite lode and contact metamorphic deposit will eventually become the main source of supply. It is estimated that Thailand's ore reserves amount to at least 1,000,000 tons and can be worked for another century at present rate of output.

LEAD AND ZINC

Lead and zinc minerals together or lead minerals alone have been found in three areas. At Nong Phai in Kanchanaburi Province a lead-zinc occurrence is exposed over an irregular area of 320 sq. metres along a maximum length of 45 metres. The hypogene ore is fine-grained galena and sphalerite, containing a few scattered crystals of pyrite. The reserves were at one time estimated at over 10,000 tons of assured ore and 100,000 tons of probable ore, including the oxidized zone. The early work on this deposit was started in 1912 by German prospectors. All work ceased during World War I, and no further development was carried out for many years. During the lead shortage of World War II the Thai Army Signal Corps mined and smelted some of the oxidized portion of the ore body. After the war some leading American mining companies sent representatives to investigate the old prospecting work at Nong Phai, but nothing materialized. A local company subsequently obtained a concession and with Canadian support started mining the sulphide portion of the orebody early in 1948. The ore is hand-sorted to bring it up to metallurgical grade for shipment to Canada. At present the company is embarking upon large-scale mining, and flotation plant is being installed. So far it has produced more than 6,000 tons of ore of 44 per cent Pb and 23 per cent Zn.

TUNGSTEN

Tungsten is Thailand's second largest metallic product. The deposits are confined to a belt of granite ranges on the Thailand-Burma border. The most productive deposits are those in the Pilok district of Kanchanaburi Province, followed by those in the Mae Sariang area of the Province of Mae Hongson. Recently discovered deposits at Mae Sod, Province of Tak, now at an early stage of development, are reported to be very promising. In the peninsula region there is a substantial production from mines in Nakon Sri Thamrat, Songkla, and Surat Thani Provinces. Small productions of wolframite, mainly as a by-product from tin mining, also contribute materially to the tungsten output. Copper and manganese occur in various parts of the country, but the known deposits are small and of little commercial value.

OBSTACLES FACING THE INDUSTRY

Inaccessibility is the main obstacle to more intensive minerals development. Thailand still lacks serviceable roads in many parts of the mineralized areas. Though tin has long been worked in the south, only placers along the coastal plain are exploited, the cost of transportation from the interior being prohibitive. The lead-zinc deposit in the Kanchanaburi area is virtually in the jungle and the mining company has had to construct a road from the river to the mine. The Government is building a railway line from Surat to Phanga and a few highways through the interior of Langsuan and Krabi. These lines of communication will open up new mining districts.

The complexity of the ores is an obstacle to the development of some primary tin and lead-zinc deposits. The difficulties experienced in dressing some of the ores in the Yala area have caused a number of mines to close down. Even at the Nong Phai deposit the main work is around the hypogene ore where galena is hand-sorted from sphalerite with poor results, while the oxidized supergene ore is left practically untouched.

The Royal Department of Mines is planning to set up an experimental station to carry out research in mineral dressing and equipment is being made available through M.S.A.

Australian Mine Installs World's Largest Fan

By GEORGE FARWELL

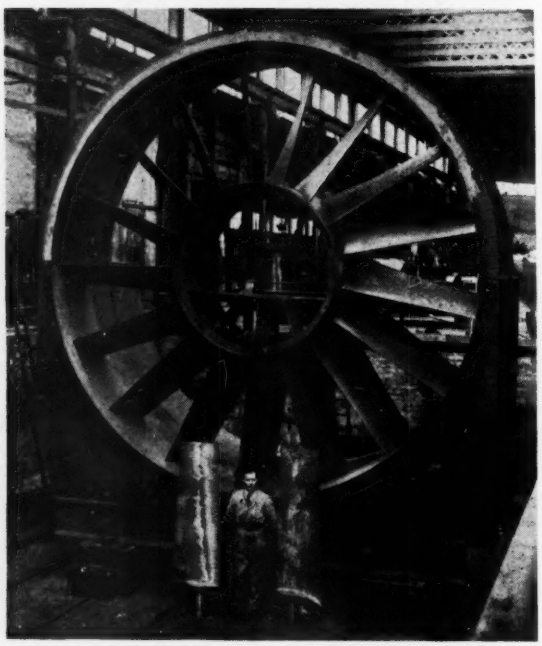
Details of the Walker-Macard Axial Flow fan were given in our issue of July 4, 1952, at which time it was also mentioned that the fan had been purchased by the Zinc Corporation. The article below continues the story at the site of the installation and describes the preparations necessary prior to its functioning as an operational unit on the surface on the common boundary of the Zinc Corporation and New Broken Hill Consolidated.

The Zinc Corporation and New Broken Hill Consolidated properties adjoin on the southern fringe of the Broken Hill silver-lead-zinc field 700 miles west of Sydney.

While their geographical propinquity provides opportunities for installations affording mutual benefit, the relatively isolated position of the companies makes it necessary for them to adopt a somewhat different basis for assessing the optimum scale of operations from those mining companies sited closer to large industrial centres. For example, freight and power charges, owing to the long distances involved, present themselves as major cost items and thus anything that will tend to reduce actual or potential expenditure under these heads assumes a high degree of importance. One of the basic ways in which these costs can be reduced is, of course, by ensuring that all production units operate at optimum efficiency for long periods of time.

The foregoing outline of some of the special factors which obtrude when any important decisions are to be taken concerning the equipping of the mines, together with the fact that geological conditions of the Broken Hill field enable underground operations to be planned for a considerable number of years ahead, makes it easier to understand why the companies, in purchasing a ventilation fan, decided to acquire the largest unit of its kind anywhere in the world. More than that it explains why a second fan unit of generally similar design has also been purchased to act as a stand-by in the event of an emergency.

The Walker-Macard Axial Flow mine fan manufactured by Messrs. Walker Bros. (Wigan) Ltd. and purchased by the Zinc Corporation is a 209 in. diameter single stage adjustable pitch unit operated on a direct drive by an 850 h.p. motor. The fan, which is to provide ventilation for both mines, will be installed on the surface at No. 2 upcast airway which is being sunk 20 ft. in diameter on the surface on the common boundary of the two companies' leases.



The guide vanes, support ring and casing mounted on the under carriage. This photograph was taken during construction and shows the fan from the inlet with two of the blades detached in foreground

The chief purpose of the fan will be to exhaust the foul air from the various underground workings which now exist at both mines down as far as some 3,000 ft. In so doing the new fan will replace the existing axial flow fan which has been in operation for some ten years and is at present at Zinc Corporation No. 1 upcast airway.

Although details of the Walker-Macard Axial Flow mine fan were given in an article appearing in our issue of July 4, 1952, they are repeated, in part, below in order to maintain a proper perspective and also to make it clear why it was necessary to construct an enormous surface evasee, which is the concrete exhaust which is illustrated on the opposite page.

DETAILS OF THE WALKER-MACARD FAN

As aforementioned the Walker-Macard fan is a 209 in. diameter single stage adjustable pitch unit operated on direct drive by an 850 h.p. motor. The entire ventilation plant has been designed to cover an initial range of summer duties of 720,000 c.f.p.m. at 2.69 in. S.W.G. and E.O. equalling 170 sq. ft. and a final range of summer duties of 900,000 c.f.p.m. at 3.74 in. S.W.G. and E.O. equalling 181 sq. ft. By means of speed and blade adjustment the unit will also cover the considerable increase in equivalent orifice of about 25 per cent due to winter conditions. During the next two decades suitable speed and blade adjustments will be made to meet the altered mine conditions anticipated. The two fans supplied are interchangeable and are mounted on carriages of patented design. The carriage wheels run in sleeve bearings, with the carriage raised by hydraulic jacks and the wheels designed to turn at right angles. In the event of a breakdown in one fan, a complete changeover can be made in one shift. The second fan unit is generally similar in design to the initial construction. The total length of the complete fan and motor house is approximately 200 ft. and overall weight of the mechanical equipment for the plant is about 100 tons. All mechanical components of the plant have been designed to withstand a maximum of 1,200 B.H.P. at 296 r.p.m.

Owing to differing load conditions, efficiency of the fan varies up to a designed maximum of 81.4 per cent, which is achieved by the use of a long diffusor type of fan and by the arrangement of direct drive from the 850 Mather and Platt A.C. slip ring motor. This arrangement gives a speed variation from 240 r.p.m. to the maximum of 296 r.p.m. The fan shaft has a tensile strength of 30/40 tons per sq. in. and the extension shaft at the inlet end of the fan has a tensile strength of 28/32 tons per sq. in.

Twelve cast manganese bronze blades are fitted on the rotor, each weighing approximately 5 cwt. and each about 5 ft. in length. Running at speed, each blade exerts an outward pull of 40 tons and the air speed is designed to leave the fan at speeds of up to 43 m.p.h. Each blade is fitted with a device which enables the blade pitch to be set to very fine limits.

THE SURFACE EVASEE

For efficient working, the air, after passing through the fan, is to be allowed to expand and slow down before being exhausted to the atmosphere. To accomplish this, a cylindrical evasee consisting of a horizontal diffusor and vertical exhaust outlet, has been built on the site. The evasee is 32 ft. in length, is streamlined internally and is constructed of reinforced concrete being 17 ft. 6 in. in diameter immediately behind the fan, and widening to a maximum diameter of 28 ft.

The construction of the evasee presented many problems, one of which concerned the thickness of the concrete walls themselves. To maintain these as self-supporting it was calculated that a thickness of concrete from 12 to 15 in. would have been necessary, which in addition would have had to be reinforced with steel. Instead, it was decided to support the walls with external ribs of pre-cast concrete. By this method of construction, the walls were reduced to a thickness of 5 in.

The Walker-Macard fan is to be connected with the shaft by a concrete drift 20 ft. in diameter. The drift will contain a number of aerofoil section turning vanes to turn the upcast air from a vertical to a horizontal direction without losing too great a pressure.

Photo: Courtesy Australian News and Information Bureau

The evasee under construction on site

Relevant information to round off this interesting installation is that before the order for the new fan unit was actually placed, mine installations were inspected in South Africa and development work was carried out in the United Kingdom. Yet it could hardly have been otherwise for when the upcast airway is completed—some time before the end of the year—it will go some distance towards facilitating the achievement of the production target set by The Zinc Corporation and New Broken Hill Consolidated of an output of 1,000,000 tons of ore a year.

Mineral Industries—Key to Canada's Expansion

Because the tremendous burst of mining activity in Canada recently has taken place simultaneously over practically the whole country, attention has tended to be focused on only the more spectacular developments, with the result that a somewhat distorted picture of Canada's mineral industry in relation to the Canadian economy has emerged. Particularly interesting therefore is the following article extracted from the current Monthly Review of the Bank of Nova Scotia which analyses the impact on the Canadian economy of Canada's growing mineral industries in terms of production, employment, exports and capital expenditure, and discusses the factors likely to militate for or against further expansion in the near future.

During this century and especially since the first world war, the mineral industries have played an increasingly important role in the growth of the Canadian economy. The development of gold, copper and nickel in the Precambrian Shield and of lead and zinc in the Rocky Mountains was a significant element in the industrial expansion of the 'twenties. Throughout the 'thirties, gold production was one of the few sustaining influences in a depressed economy and made a notable contribution to Canada's balance of payments. And while base-metal mining was sharply hit by the depression, it was one of the first industries to resume its expansion, stimulated, in part, by rearmament. When war broke out, Canadian mineral production expanded sharply to meet the extraordinary demand, though at the cost of depleting some high-grade deposits.

LARGE SCALE DEVELOPMENT PROJECTS

Over the past six years, development projects connected with the mineral industries have been on a larger scale than ever before. Historically, only the building of the transcontinental railways outranks the biggest of these projects—Quebec-Labrador iron with its associated railway, the pipelines to carry Alberta oil to the Pacific coast and eastern Canada, and the huge aluminium undertaking at Kitimat. These and other projects have meant a more diversified output extended over a wider area. While production of some of the long-established minerals—particularly zinc, nickel and asbestos—has been substantially increased, petroleum and iron ore, both of which used to be small industries, have been experiencing a phenomenal growth, and a number of new products, such as uranium and titanium, have appeared on the scene. Across the country, the mining frontier has been pushed northward—to the lead-zinc-silver mines in the Mayo district of the Yukon, to the McDame Creek asbestos mine in British Columbia, to Uranium City in Saskatchewan, to the Lynn Lake nickel-copper development in Manitoba and finally, and most important, to the iron-ore fields of Quebec-Labrador. In addition, regions farther to the south, which formerly produced few minerals or none at all, have been participating in the current development. The most striking examples are the upsurge of Prairie oil production since the Leduc discovery in 1947 and, at the other side of the continent, the development of Gaspé copper and the discovery of new deposits of lead and zinc in New Brunswick.

Impressive as this expansion is, the post-war story of the mineral industries is not one of uniform growth. The once-dominant gold mining industry has felt the increasing pressure of rising production costs in the face of a comparatively rigid price for its product. And the coal industry has experienced difficulties in part due to increased competition from oil and hydro-electric power.

The purpose of this review is to bring together some of the facts relating to the growth of mineral production and to assess briefly the comparative positions of the chief minerals.

THE GROWTH OF MINERAL PRODUCTION

The total value of mineral production amounted to nearly $1,300,000,000 in 1952, without taking into account the value of aluminium produced from imported ore. In 1953 it may well be significantly higher in spite of the lower current prices for lead and zinc. The value of the 1952 output was about four times the 1929 figure and two-and-one-half times that for 1939. In terms of physical quantity, production last year was about two-and-one-half times that of 1929 and one-and-one-half times that of 1939. Since 1939 changes in the volume of output of the various minerals have been widely diverse, ranging from decreases

of some 15 per cent for gold, copper and lead, to increases of about 25 per cent for nickel, 100 per cent for zinc, 165 per cent for asbestos and 200 per cent for iron ore (including Newfoundland production in both years), and to a spectacular seven-fold rise for petroleum.

During the 'thirties, gold was the pre-eminent product of the Canadian mineral industries, followed at some distance by coal, copper and nickel. To-day five minerals—six if aluminium is included—rank about equally, with individual annual outputs valued in the neighbourhood of $150,000,000. The six are gold, copper, nickel, zinc, aluminium and petroleum; coal has failed to keep pace with the others, its output amounting to about $110,000,000 in 1952. The leading minerals have taken different routes since the immediate pre-war years to reach their current positions of near-equality and it is apparent that some will soon be considerably more important than others.

Two of these minerals—aluminium and petroleum—have reached their present positions by enormous expansion in production. The value of aluminium production in 1952 appears to have been over five times that of 1939 and probably in excess of $150,000,000 after allowing for the cost of the imported ore. There is more growth in prospect; the initial capacity of the Kitimat project is 82,000 metric tons, and the potential capacity is 500,000 tons—more than the total output in 1952. The value of petroleum production, which has quadrupled in the past four years to reach nearly $150,000,000 last year, will undoubtedly be considerably higher this year and much higher next year. The completion of the pipeline system will permit a marked increase in output, which will almost certainly make petroleum the premier Canadian mineral.

THE POSITION OF THE MINERAL INDUSTRY IN THE CANADIAN ECONOMY*
(Source: Dominion Bureau of Statistics)

	1929	1939	1946	1951	1952
Net Value of Production ($ millions)	315	393	422	1,095	1,140†
as % of National Production	5·1	6·9	3·5	5·1	5·0
Number of Employees (thousands)	95	108	99	129	137†
as % of Non-Farm Employment	3·7	4·0	2·9	3·1	3·2
Wages and Salaries ($ millions)	124	152	197	397	460†
Value of Exports ($ millions)‡	176	384	370	822	930
as % of Total Exports	15	35	15	20	21
Value of Exports to U.S.A. ($ millions)‡	117	245	228	512	563
as % of Total Exports to U.S.A.	22	43	23	21	23
New Investment ($ millions)	55	38	58	229	272
in Construction	30	17	30	130	170
in Machinery and Equipment	25	21	28	99	102
Consumption of Electricity (millions k.w.h.)	2,405	5,339	8,292	13,838	N.A.
as % of Total Electricity Generated	12	17	19	23	N.A.

*Includes non-ferrous metal smelting and refining as well as primary mining, but does not include petroleum refining. †Estimated. ‡Production figures rather than export statistics for gold have been used in the calculatoin of mineral exports and total exports and it is assumed that all the gold is exported to the United States, since gold is a claim on U.S. dollars immediately it is taken out of the ground. N.A. indicates figures are not available.

New discoveries and the development of existing orebodies have made zinc the most plentiful of the traditional Canadian base metals. Because of the rapid expansion in production and a considerably higher price, the value of zinc output in 1952 was 11 times that of 1939. Though zinc is not quite in the $150,000,000 class (it was $133,000,000 in 1952), it has far outstripped lead, which used to exceed it. Nickel has more than held its relative position, reflecting a higher price and increased production. Although output declined sharply toward the end of the war, it has been climbing steadily since 1946 and has almost regained its wartime peak—a level well in excess of pre-war. Copper has not yet regained the peak production of the late 'thirties and early 'forties, though with the development of new deposits some increase in output is in prospect. Its price, however, has risen more than the prices of most other minerals, with the result that it is contributing nearly as large a share to the total value of mineral production as it did in 1939.

Gold, the remaining mineral with a production valued at $150,000,000, has reached its present position by the least satisfactory route. The fact is that the value of gold production in 1952 was $33,000,000 lower than in 1939 and $54,000,000 lower than the peak reached in 1941, reflecting declines in both output and price. It is difficult to avoid the conclusion that, unless the world price of gold is increased, the declining trend in the industry's relative importance will continue.

OUTLOOK FOR THE SMALLER MINERAL INDUSTRIES

When it comes to some of the smaller mineral industries, the outlook is again one of expansion. One of the most dramatic developments is, of course, the construction of new facilities for the production of iron ore, not only in Quebec-Labrador but also in northern Ontario, in Newfoundland and in British Columbia. In a few years, output of iron ore could readily be four times the 1952 level of 5,000,000 tons valued at $34,000,000. Though no multiplication of production is in prospect for asbestos, a further increase over the current $90,000,000 output (which is, in fact, more than five times the 1939 figure) may be expected, as a result of the current development programmes. Of the newer metals, titanium holds promise of pronounced growth; substantial outlays have been made for the development of large ilmenite orebody at Allard Lake on the north shore of the St. Lawrence and the construction of the smelter at Sorel. And, though there are no statistics on uranium to tell the tale, the new mill at Beaverlodge Lake, the discovery of new deposits, and the feverish activity in prospecting all point to a strong upward trend in production. Among the other possibilities is a sharp increase in natural gas output, which awaits the building of pipelines to provide a market for this commodity.

In summary, it is clear that mineral production is rising notably. Given a reasonably good demand, and prices in the neighbourhood of current levels, the value of the production of the mineral industries could easily increase by as much as 25 per cent in the next few years. Of course, no one knows how well mineral prices will, in fact, be maintained.

THE ROLE OF THE MINERAL INDUSTRIES IN THE CANADIAN ECONOMY

It is in capital expenditures and exports that the impact of the mineral industries on the Canadian economy is most strongly felt. Their direct contribution to production and employment is comparatively small. The table below gives production, employment, wages and salaries, exports, capital investment and electricity consumption of the mineral industry, including the processing industries as well as the primary operations.

As the table shows, the mineral industries have accounted for a growing proportion of the national output in the post-

war period, rising from 3½ per cent in 1946 to 5 per cent in 1952. This is about the same proportion as in the late 'twenties but it is not so big as in the late 'thirties and early 'forties when gold played so large a part. However, since the mineral industries are now growing more rapidly than any other main sector of the economy, a further improvement in their relative position may be expected to take place.

The mineral industries are not large providers of direct employment; they account for some 3 per cent of non-farm employment. The reason is that mining, smelting and refining are generally large-scale, highly mechanized operations, involving heavy capital investment and a comparatively small working force.

The mineral industries have been contributing a large and growing share of Canada's export income. They accounted for over one-fifth of the total value of exports in 1952, as compared with 15 per cent in 1929, and their share of exports to the United States was 23 per cent in 1952, though it can be expected to increase over the next few years. Moreover, petroleum production, though it does not contribute to exports, is steadily reducing dependence on oil imports. These influences, together with the great expansion in the sale of forest products to the United States, are helping Canada to adjust herself to the decline in overseas market opportunities and promise ultimately to produce a much closer balance in Canadian-U.S. transactions.

The figures for the mineral industries in the table cover only direct investment in mining, quarrying and oil wells and in non-ferrous metal smelting, refining and fabricating, and do not include the associated expenditures on oil-refining facilities, power or transportation. Even so, these investment outlays in 1952 were $272,000,000, and this year are estimated at some $360,000,000, a figure more than twice that of the forest industries.

CAPITAL EXPENDITURES ASSOCIATED WITH MINING

Capital expenditures closely associated with mining developments—for subsidiary industries, power and transportation—probably bulk larger than the mineral industries' direct expenditures on plant and equipment. There are, for example, the expenditures related to oil development, including the oil pipelines, the expansion of oil-refining facilities, and the petro-chemical industry now being established in Alberta. Then too, the nickel-copper refinery under construction near Edmonton is based on natural gas.

The use of power by the mining, smelting and refining industries has grown so rapidly that a substantial proportion of the new hydro-electric facilities, recently installed or now under construction, is connected with mining and smelting undertakings. Aluminium smelting alone accounts for 1,000,000 h.p. of new capacity, half of it nearing completion in the Saguenay Valley, and the remainder at Kemano to be ready in a year's time. Then there is the 210,000 h.p. plant in southern British Columbia which will serve the enlarged lead-zinc smelter at Trail and the associated fertilizer plant at Kimberley. Power from the 300,000 h.p. development on the Bersimis River north of the St. Lawrence, for which ground has recently been broken, will be carried across the river by means of submarine cables to the Gaspé copper project; the new power plant will also meet general industrial needs. On the Mayo River in the Yukon, a small hydro-electric plant has just been completed and is supplying power to the lead-zinc-silver mines in that area, and power plants are being built in connection with Quebec-Labrador iron and Lynn Lake nickel-copper.

The Quebec-Labrador, Lynn Lake and Kitimat projects are also responsible for the three railway lines now under construction in Canada. The first, and much the largest, opens up a vast and hitherto inaccessible area, thus providing a base for further mineral exploration. Furthermore, other mineral developments have been increasing the freight traffic over existing northern lines and have thus been reducing the overhead costs of the long stretch over the Shield. The new mining developments have also involved a wider application of air transport which has for many years played an important role in Canadian mining. Relatively new is the use of the helicopter in geological survey work and in such preliminary engineering surveys as that for the transmission line over the mountainous terrain from Kemano to Kitimat. At the same time, the use of air transport for heavy freight has been much extended; the most outstanding example to date is the Quebec-Labrador airlift which has been carrying mining machinery to the ore fields and railway building equipment to construction sites along the new railway right-of-way.

New roads are being built, such as those connected with the Gaspé and Chibougamau copper developments in Quebec, and with the uranium mine at Beaverlodge Lake in northern Saskatchewan. New frontier towns—Kitimat, Uranium City, Lynn Lake, Burnt Creek—have sprung up in the wilderness and Murdochville, the townsite for the Gaspé copper development, has just begun its legal existence. Older communities have boomed: Edmonton has become Canada's fastest growing city, while such places as Atikokan and Seven Islands are experiencing rapid growth.

INCENTIVES TO CAPITAL INVESTMENT

This is a most impressive picture of widespread and major expansion reaching out to stimulate in varying degree almost every part and every region of the economy. It is particularly impressive in that it has occurred despite depression in gold mining and despite the lack of stimulus which the lure of gold has always provided in prospecting. At the moment, the mineral industries are at the very centre of the resource development programme and are without doubt the most important single influence in Canadian economic growth.

Yet, it is well to remember that the present immense scale of expansion is the result of a favourable economic climate, a climate that has encouraged the very large outlays of capital needed to open up remote areas and to develop ore bodies which in times past might not have been regarded as economic. All the new developments are not new discoveries—it has long been known, for example, that there was iron in Quebec-Labrador but only recently did it seem worth the risk of huge sums of money to develop it and build the necessary expensive system of transportation. Similarly, the Kemano power site is being developed because there is an expanding demand for aluminium, and the Gaspé copper deposits have awaited favourable conditions for their development. In short, large-scale mineral development depends heavily on the general economic climate, and a change for the worse, even of comparatively short duration, would sharply reduce the number of new projects undertaken. Moreover, it cannot be assumed that even in a continued favourable climate the scale of expansion would go on at the present rate.

LONG TERM PROSPECTS ENCOURAGING

Nevertheless, the long-term outlook is an encouraging one. Increasing industrialization throughout the world and the expanding requirements of the U.S. economy, which are so important in the underlying trend of Canadian growth, seem likely to have a very special impact on the demand for metals and petroleum—the leading products of the Canadian mineral industries. In addition, new and improved methods of prospecting notably extend the possibilities of finding new ore deposits including those without surface showings.

TECHNICAL BRIEFS

Corrosion Testing in Saline Water and Atmosphere

The significant annual wear owing to corrosion in underground metallic installations such as pipe systems and the like was revealed in an article which appeared in *The Mining Journal* of April 3 and April 10 of this year. This problem is one of direct concern to the mining industry, as the more rapid depletion of ore supplies demands the minimum wastage of iron and steel, together with the joint realizations that enormous quantities of non-ferrous metals and minerals are consumed in the form of protective coatings and that corrosion affects mining costs by reducing the life of unprotected equipment and structures.

It is now reported from the United States that more than 25,000 specimens of metals and other engineering materials have been exposed to corrosion in marine atmospheres in that country, according to a report appearing in *Mechanical Engineering*. Conditions for both salt water corrosion and salt atmosphere corrosion were present during the tests, which were sponsored by the International Nickel Company and co-operating companies.

The experiments have shown that laboratory testing of salt water and atmosphere corrosion is inadequate for measuring the behaviour of metals and alloys. In the seawater tests, the majority of specimens are exposed on racks continuously immersed at a depth of 2 ft. to 7 ft., according to tide level, although specimens can be suspended from a pontoon when constant depth of immersion is desired. By this means the effects of corrosion of metals in fabricated form such as condenser tubes, piping systems, pump impellers and the like may be tested.

The study of the anti-fouling characteristics of metals, alloys, plastics and protective coatings has been an important phase of the tests. Specimens are fastened to racks by Monel machine screws, galvanic effects being prevented by bakelite insulating tubes over the bolt shanks and insulating washers between the specimens and the racks and the Monel washers under the bolt heads. Some Monel fastening pieces are in excellent condition after being in use for 16 years.

Abrasive-Belt Grinding

A new method of sharpening tungsten carbide cutting tools without a diamond wheel has been developed, according to a report recently published in *Mechanical Engineering*. The costs are approximately two-thirds less per tool sharpened, than by the conventional diamond-wheel method, and a longer-lasting cutting edge on the tool is produced. The machine was developed by the Behr-Manning Corporation (Troy, New York) and the Fenling Engineering Company (Rockford, Illinois). The machine uses, as a grinding element, a coated abrasive belt which travels over a cast-iron contact wheel that is specially formulated for extreme hardness.

The new development lessens the urgent need for diamond grinding wheels, the supply of which is now critically low. It makes tungsten-carbide-tipped cutting tools available to about 60,000 small shops which cannot afford diamond wheels. Field tests show that belt costs for sharpening tungsten-carbide tool bits range between 1 and 3 c. per tool. Sharpening carbide tools by the conventional method costs 6 to 17 c. Moreover, the abrasive-belt procedure eliminates two traditional steps without sacrificing the performance of the cutting tool — the intermediate grind and the finish honing operations. After the proper clearance angle has been rough-ground on the tool with a silicon-carbide wheel, the relief angle and final cutting surface can be microfinished in one operation, with the coated abrasive belt.

Moreover, the working life of tungsten-carbide-tipped cutting tools which have been sharpened by a coated abrasive belt averages about double the life of those which have been sharpened by conventional methods. For example, in one controlled test made on a production line, turning 5665 nickel alloy, the carbide turning tools which were sharpened by diamond wheels completed an average of 12 pieces per re-sharpened tool, while those which were sharpened by the new method completed an average of 34 pieces before resharpening was necessary. In a shop where parts made of AMS 5060 steel were being machined, diamond-wheel-sharpened carbide tools produced 120 pieces; but the belt-ground tools turned out an average of 202½ pieces per resharpened tool.

The comparatively finer finish which is produced by the abrasive belt on the cutting face of the carbide tip accounts for the extended life of the tool. A finish of 2 to 16 micro-in. root mean square is put on the tool by the 220-grit belt. In addition to the better finish which it produces, the belt method does not produce shipping on the cutting edge of the tool which must be honed off with a diamond hone, if the older method is used.

Fine Sand Recovery by Wet Cyclone

The Fox Aggregates Plant, operated by the Hartman Concrete Materials Co., in the United States, is recovering valuable fine sand at a rate of four tons per hour which would otherwise go to waste, according to a report published in a recent issue of *Pit and Quarry*. This has been accomplished by the installation of a wet cyclone, known as the Whirlcone, manufactured by the Cottrell Engineering Co., of America.

The aggregates plant, located at a deposit along the Kern River, has a capacity of approximately 150 tons per hour, half of which is sand. The coarse aggregate processing is simple and conventional, involving only a scrubber and spray-equipped screens. After the sand leaves the screens, it is flumed to a screw classifier or conveyor. At the lower weir of the screw, the dirty water and such waste material as floating chips, overflow to waste. Formerly a large volume of fine sand overflowed with the waste and was lost; now, however, when the surface water of the tailings overflows, the balance settles to feed a 6-in. sand pump. The tailings are then pumped through a pipe to the Whirlcone located above the discharge end of the screw.

The 25-in., rubber-lined, wet cyclone discharges the waste water through an outlet at the top and the reclaimed fine sand directly into the upper end of the spirals of the screw. This blends the fines into the composite sand and allows most of the migratory water to escape before it discharges to a conveyor. The conveyor inclines and operates as a radial stacker, piling the sand for drainage into four heaps.

A Lead/Steel Bonding Technique

A new and versatile automatic machine which is said to produce a perfect chemical bond between lead and steel has been announced in America by Knapp Mills Inc., in association with the patent development department of the American Viscose Corp.

According to the developers, in one day one small machine of the new type will clad a steel surface that would require eight to ten man-days to cover by hand techniques.

New Building Material Industry

Slate brought up in coal mining operations, hitherto discarded as waste, is the basic product used in a new industry recently established at Stein, in Limburg. The slate is ground down to form the main ingredient in " hollith stone," claimed to be a light, cheap, soundproof and porous building stone. The plant, which is already working at full capacity, is producing 250 to 300 tons of the material daily.

An Alloy for Atomic Reactors

The combined efforts of Canadian and British scientists have produced an alloy suitable for use in an atomic-powered bombing plane, according to *The Toronto Star*. The new metal alloy is said to make possible a compact atomic reactor and built into existing delta-wing designs, such a reactor gives an impressive endurance at the expense of a few pounds of uranium fuel.

The new alloy replaces lead as a screen against the deadly radiation from an airborne reactor. United States scientists, pursuing the same aim, have tried to build an aircraft large enough to carry the 50 tons of lead considered the very minimum protection, with other screening, for flying crews. They believe Russian scientists to be in the same predicament, in which an atomic-powered plane is possible but impracticable.

METALS, MINERALS AND ALLOYS

This week has again been an extremely quiet one in the Metal Market. For this the absence of any definite news regarding the outcome of negotiations between Chile and the United States and between the Copperbelt companies and the African Mine Workers' Union have contributed in the case of copper, and in the case of tin between the United States and the Bolivian Government. To these factors may be added the exceptionally prolonged heat-wave in the U.S. Eastern and Mid-Western belts, which must be affecting the working of many plants.

Prices on the London Metal Exchange have been inclined to firm, especially tin, a trend which appears to have caused some supply in the United States, where there appears to exist a somewhat vague apprehension of a relaxation in trade activity.

COPPER. — Copper has continued to be available to consumers for September deliveries in the U.S. at 29-30 c. delivered Valley points, but in view of the supplies readily available consumers are still cautious. July statistics show a heavy decline in consumption of the metal by U.S. fabricators, with a total of 91,938 s.tons as against 132,615 s.tons in June, with the September figures not at present expected to be much better.

The outcome of the talks between the American and Chilean Governments still remains uncertain. Though the Defense Mobilization Board recommended negotiation over the unsold stocks the Chairman said that the situation remained quite fluid, and it apparently remains to be decided whether further additions to the Government stockpile should be taken from Chile, or from the many purchase contracts which the Domestic Procurement Agency has entered into and which are estimated to amount to some 1,400,000 s.tons. Production under these programmes is now just beginning. As many of these contracts carry a guaranteed government purchase some observers think that there is no need to buy any Chilean copper at all. According to a Santiago report a French firm has requested a quotation for the purchase of 65,000 tonnes of Chilean accumulation for delivery at the beginning of November, with the right to re-export the metal. However, the manager of the firm in Paris has characterized the report as premature and very exaggerated. He did not think that a deal would result, and in any case he would only be interested in a small portion of the tonnage. Dr. Louis MacKenna, Counsel to the Chilean Bank in Washington, has flown to Santiago where he will probably remain for some days before returning to Washington for the forthcoming negotiations. It is also reported from Santiago that the Soviet trade mission to the Argentine is negotiating for the immediate purchase of 2,000 tons of electro at $832 per ton delivered Dutch or Belgian ports.

So far there has been no further move towards a strike on the Copperbelt by the Native Miners' Union. The Chamber of Mines has agreed to discuss their action in declining to continue the check off from miners' wages for their Union dues. The matter is to be discussed at the week-end. What makes the prospect of any immediate outcome to the labour position unlikely is the fact that the President of the African Union is now in Switzerland attending the Moral Rearmament Conference.

LEAD.—Lead has continued a very steady market with forward metal showing a tendency to improve. In the United States demand is said to be good with 95 per cent of the September output already sold. The St. Joseph Lead has started up one furnace at Heculaneum with a second to follow in November. Production increased slightly during July to 40,210 s.tons, while shipments to domestic consumers declined. Stocks increased about 4,500 s.tons to 60,017 s.tons. Shipments to battery makers rose to some 2,500,000 units compared with 2,000,000 in June. However, as some decline in automobile production is anticipated, further improvement may not be forthcoming.

U.S. imports of lead in the first half year were up about 22 per cent at 322,922 s.tons against 265,627 in the same period last year. This big increase no doubt helps to explain the desire of the U.S. producers to obtain further tariff protection.

TIN.—Optimism regarding price prospects has been further displayed on the London Metal Exchange since our last and the advance has been followed, if somewhat reluctantly, in the United States. The reasons for this improved sentiment have still to declare themselves.

Following the increased production of tin in Malaya during July, Straits shipments in August rose to 5,641 tons against 4,305 tons in July. Of these shipments 3,506 tons were to the U.S.; 793 to the Continent; 579 to the Pacific; 381 to India; 161 to the U.K.; 112 to Australia; 75 to Canada; 14 to South America; and 18 to the Middle East.

One explanation for the recent improvement in Malayan output, apart from the well-known tendency of the Chinese to seek to meet lower prices by harder work and some selective mining, is said to be a desire to be able to present good production figures in the event of restriction and quotas once more coming into operation. It is announced that Senator McCarthy plans a visit to South East Asia some time next month.

United States imports of tin for the first half of the year in metal and concentrates totalled 59,826 tons compared with 44,801 tons in the first half of 1952. The main increase was from Bolivia, imports from which were about 900 s.tons higher at 10,752 tons. Imports of metal from the Netherlands also increased about 1,300 tons to 9,038. Concentrates shipments from India and Thailand were also higher. Consumption in June was 7,510 tons of all grades against 7,560 tons in May.

The U.S. National Security Resources Board is expected to issue a 700 page monograph on tin, including a chapter on beneficiation processes, shortly.

ZINC.—Zinc prices on the Metal Exchange have shown little change since last week, and business in the United States is reported as small. U.K. consumption in the first half of the year is computed at 14,800 tons per month as compared with 14,200 last year. The figures are below those of 1951 (15,700 tons per month) and still more inferior to those of 1950, when they reached 19,700 tons. Consumption improved in galvanizing and for rolled zinc, but oxide and die casting requirements were somewhat lower. Consumers' stocks rose during the period from 7,236 tons to 11,600 tons, equal to about 3 weeks' consumption.

As was the case with lead, zinc imports in the United States in the first six months showed a big increase, and for metal and concentrates totalled 383,679 s.tons compared with 249,818 s.tons in the first of last year, an increase of some 54 per cent.

ALUMINIUM. — The Office of Defense Mobilization has stated that U.S. aluminium producers will be required to make a record delivery of the metal to the strategic stockpile in the fourth quarter of this year, and this will constitute the largest quantity deliverable to the stockpile in any quarter so far. At the same time civilian users will have appreciably more metal than in any previous quarter. They should benefit also from a reduction in requirements by atomic energy and military contractors. The Agency estimate that total U.S. production this year should reach 1,260,000 s.tons.

The putting into commission of the eighth and last electrolytic potline at the new Chalmette works in Louisana brings the capacity of the plant up 200,000 tons per year, according to a spokesman of the Kaiser Aluminium and Chemical Corporation. This official stated that the aluminium industry was virtually assured of a sold-out position as far forward as 1958, with the government undertaking to buy any level that could not be sold resulting from the new production facilities.

PLATINUM. — The U.S. price was reduced last week to $92-93 from the previous figure of $93-95.

TUNGSTEN.—Demand in this country remains very slack as it has done for some time past, in fact it is difficult in these circumstances to even establish a price level. For the first time in many months demand in America appears to have dried up. The price structure there has only been maintained by the covering of long term contracts.

SILVER.—U.S. production of silver in the first six months of the current year was 18,618,060 f.oz. compared with 20,273,915 f.oz. for the same period in 1952. As in the case of gold, both figures were below those for the first half of 1951.

Iron and Steel

Further indications are forthcoming that the steel industry has passed the crest of the wave. American steel plants are now operating slightly below rated capacity and in Western Germany a sharp decline in output has prompted the authorities to reduce the target for the year from 18,000,000 to 16,500,000 tons. British steel makers on the other hand are confident that their own target of 17,500,000 tons will be reached. Undoubtedly there is a less feverish demand. Some products, notably plates, are still "tight" but supplies generally are more freely obtainable, and consumers are able to resort to shorter term buying. Home requirements however are still extensive. Most of the heavy industries are very busy. Shipbuilders and boiler makers could step up production considerably if they could get adequate supplies of steel plate, though incidentally it may be mentioned that arrivals of Austrian plates have reached impressive proportions. Railway and wagon shops are also working to the limit of their capacity. The motor trade is booming and marine and electrical engineers have contracts in hand which will impose heavy demands on the steel plants. Even the export trade is developing some signs of resilience. Australia and New Zealand are reducing their import restrictions and despite the prevailing financial stringency the current rate of steel exports is well above last year's levels. Imports on the other hand are on a substantially lower scale. Shipments from U.S.A. and Japan have dried up and the increase in the volume of home produced steel semis is reflected in the sharp contraction of imports from France and Belgium. Other favourable factors are the steady build up of stocks of imported ore and the greater abundance of supplies of home and foreign scrap. Thus the steel industry is approaching a period when all requirements can be met at reasonably short notice, and bookings for the fourth quarter, if not yet in full spate, are quickening. The light castings trade is still sluggish, and there is a small surplus of high phosphoric iron, but all other grades of pig iron are eagerly taken up and there is no surplus available for shipment abroad. Good supplies of scrap are available, the increase of foreign scrap being at lower prices than formerly.

The London Metal Market

(From Our Metal Exchange Correspondent)

Tin has again shown firmness, both here and in the East where the daily offerings have been well absorbed at steadily rising prices. Consumer buying in the United States has been patchy, but there has been a fair demand elsewhere. It is understood that the American offer to the Bolivians for a year's contract for concentrates based on the market price at the time of delivery has been accepted in principle, and it is believed that negotiations have commenced although no news as to progress is forthcoming in this connection. The Eastern price on Thursday morning was equivalent to £641 15s. per ton c.i.f. Europe.

Copper has been quiet and without any special feature. Chile is still trying to dispose of her surplus copper to the American stockpile, and it is thought that an agreement to that end will eventually be arrived at.

Lead has continued a very firm market, and supplies of "prompt" metal seem still to be somewhat restricted.

Zinc has been very dull, but on the whole steady. Consumer demand is not as brisk as it might be, but with works' holidays over more interest from this direction can be looked for.

Closing prices and turnovers for the week are given in the following table:

	August 27		September 3	
	Buyers	*Sellers*	*Buyers*	*Sellers*
Tin				
Cash	£602½	£605	£623	£625
Three months	£600	£602½	£612½	£615
Settlement	£605		£624	
Week's turnover	440 tons		490 tons	
Lead				
Current month	£97½	£98	£95	£95½
Three months	£91½	£91¾	£91	£91¼
Week's turnover	3,075 tons		8,250 tons	
Zinc				
Current month	£72½	£72⅞	£71⅛	£71¼
Three months	£72⅜	£72⅝	£71⅛	£71⅛
Week's turnover	3,175 tons		3,925 tons	
Copper				
Cash	£226	£230	£223	£230
Three months	£211½	£212	£213½	£214
Settlement	£230		£230	
Week's Turnover	2,275 tons		4,600 tons	

U.K. METAL & MINERAL IMPORTS—JULY 1953

	Units	*July 1953*	*Jan.-July 1952*	*Jan.-July 1953*	*Increase or decrease in 1953 over 1952*
Non-ferrous metals and manufactures :					
Aluminium and alloys	Cwt.	453,256	2,707,485	2,020,138	—687,347
Bismuth*	Lb.	37,252	401,288	265,629	—135,659
Cadmium**	Lb.	71,168	1,105,262	399,967	—705,295
Cobalt and Alloys**	Lb.	298,650	1,895,559	2,020,188	+124,629
Copper Electrolytic	Cwt.	472,238	2,646,260	2,608,201	— 38,059
,, Other sorts	Cwt.	177,243	1,794,040	1,374,465	—419,575
Lead	Cwt.	225,967	1,918,380	1,906,158	— 12,222
Mercury	Lb.	140,056	426,340	932,351	+406,011
Nickel	Cwt.	14,451	73,069	106,676	+ 33,607
Tin	Cwt.	440	48,080	18,237	— 29,843
Zinc	Cwt.	134,517	2,776,780	1,953,770	—823,010
Ores and Concentrates :					
Antimony ore and conc.	Tons	125	14,448	5,869	— 8,579
Bauxite	Tons	17,559	159,832	174,647	+ 14,815
Chromium ore	Tons	13,204	106,408	102,068	— 4,340
Iron Pyrites†	Tons	47,458	275,766	194,009	— 81,757
Manganese ore	Tons	23,208	248,174	277,444	+ 29,270
Molybdenum ore	Cwt.	8,144	46,775	46,510	— 265
Nickel ore, conc. & matte	Tons	3,740	20,430	21,129	+ 699
Tin ore and conc.	Tons	6,324	32,765	33,312	+ 547
Titanium : Ilmenite	Tons	3,850	67,411	51,622	— 15,789
,, Other sorts	Tons	617	5,521	4,086	— 1,435
Tungsten ore	Tons	338	4,803	3,055	— 1,748
Zinc ore and conc.	Tons	19,152	91,042	111,240	+ 20,198
Non-metalliferous mining products :					
Asbestos	Tons	8,867	72,441	56,871	— 15,570
Magnesite	Tons	5,692	15,113	15,421	+ 308
Sulphur	Tons	4,403	266,087	116,871	—149,216

*Excluding bismuth alloys. †Including cupreous iron pyrites.
**The figures for 1953 are not completely comparable with those for previous years.

SEPTEMBER 3 PRICES

COPPER, TIN, LEAD AND ZINC

(See our London Metal Exchange report for Thursday's prices)

ANTIMONY

English (99%) delivered, 10 cwt. and over .. .. £225 per ton
Crude (70%) .. .. .. £210 per ton
Ore (60% basis) .. .. .. 20s. — 22s. nom. per unit, c.i.f.

NICKEL

99.5% (home trade) .. .. £483 per ton

OTHER METALS

Aluminium, 99·5% £150 per ton
Bismuth (min. 4 cwt. lots) 16s. 6d. lb.
Cadmium (Empire), 13s. 10d./14s. 4d. lb.
Chromium, 6s. 5d./7s. 6d. lb.
Cobalt, 20s. lb.
Gold, 248s. f.oz.
Iridium, £60 oz. nom.
Magnesium, 2s. 10½d. lb.
Manganese Metal (96%-98%) £280/£295
Osmiridium, £40 oz. nom.
Osmium, £65/70 oz. nom.
Palladium, £7 15s./£8 10s. oz.
Platinum, £27/£33 5s.
Rhodium, £42 10s. oz.
Ruthenium, £25 oz.
Quicksilver, £70 5s./£70 10s. ex-warehouse
Selenium, 30s. 6d. nom. per lb.
Silver 74d. f.oz. spot and f'd
Tellurium, 15s./16s. lb.

ORES, ALLOYS, ETC.

Bismuth .. .. 50% 7s. 3d. lb. c.i.f.
40% 6s. 3d. lb. c.i.f.
Chrome Ore—
Rhodesian Metallurgical (lumpy) £14 8s. 0d. per ton c.i.f.
,, ,, (concentrates) £14 8s. 0d. per ton c.i.f.
,, ,, Refractory £14 0s. 0d. per ton c.i.f.
Baluchistan Metallurgical .. £16 11s. 6d. per ton c.i.f.
Magnesite, ground calcined .. £26 - £27 d/d
Magnesite, Raw .. .. .. £10 - £11 d/d
Molybdenite (85% basis) .. 103s. 10½d. per unit c.i.f.
Wolfram (65%) .. .. .. World buying 305s. - 315s.
,, ,, ... 327s. 6d. U.K. Selling
Scheelite .. .. World buying 290s. - 300s.
,, ... 312s. 6d. U.K. Selling
Tungsten Metal Powder (98% Min. W.) .. .. 24s. 3d. nom. per lb. (home)
Ferro-tungsten .. .. .. 21s. 4d. nom. per lb. (home)
Carbide, 4-cwt. lots .. .. £35 13s. 9d. d/d per ton
Ferro-manganese, home .. .. £49 15s. 0d. per ton
Manganese Ore Indian c.i.f. Europe (46%-48%) .. .. .. 7s. 11d. - 8s. 7d. per unit
Brass Wire .. .. 2s. 5½d. per lb. basis
Brass Tubes, solid drawn .. 1s. 10d. per lb. basis

THE MINING MARKETS

(By Our Stock Exchange Correspondent)

Markets generally were rather unsettled during the week. Wall Street suffered a sharp setback but was steadier towards the end of the period. Other factors were the end of the account and the tension between Italy and Yugoslavia. On the more favourable side, there was an overall revenue surplus for the past week of £3,600,000, the current deficit for the year is now some £108,000,000 better than for the same period last year. Gilt-edged stocks were very firm on safety first buying and good gains were recorded.

The gold producers index now stands at its lowest level since August, 1931, and buyers of Kaffir shares are being extremely selective. Where investment does occur, demand is almost exclusively for first class developers and potential uranium producers. While Johannesburg has been hoping for a turn for the better in the U.S. gold price policy, any chance of an increase is still scouted in Washington. There is no doubt that South African politics are one of the chief dampers in this market and are the cause of serious difficulties in raising fresh capital. Turnover has sunk to a very low level and the old adage " Buy Kaffirs when they are friendless " no longer holds good.

Consolidated Goldfields recorded a sharp advance following favourable press comment on the prospects of properties in this group. The Anglo American Corporation have made a bid for New Era Mines and the shares of the latter company have been a firm market in consequence. Doornfontein turned weaker on strong rumours that fresh capital would soon be required. This comes on top of the recent disappointing development results. The annual report, due in a few weeks' time, will be awaited with great interest. Rand returns for August showed varied experiences. Some mines' costs were up and others' down. The West Driefontein figures were good. Although the cost of production was up, there was a sharp increase in profits and tonnage milled. Vandyk recorded another loss of £9,333 due to the fire in July; this is covered by insurance.

In the O.F.S. market, there was little change but the August returns of producers are interesting. Western Holdings doubled their profit and reduced their costs, but Welkom, also in the Anglo American group, recorded an operating loss caused by the reduction in the grade of ore milled. St. Helena showed another steady increase in milling and profits; working costs were unchanged. The expected operating losses on Freddies North and South again materialized.

West Africans were very idle but there was a firm undertone for Amalgamated Banket and Ashantis.

Diamonds started easier but picked up later on local support from the Cape. This is somewhat surprising as the sales position for stones is more difficult this year. De Beers Preferred again advanced due to investment demand and shortage of stock. Platinums were easier on the lower American metal price.

Coppers were a steady market. Rumours that the whole of the Chile metal stock may be taken by the U.S. helped. The refusal of the Rhodesian mines to deduct an increased Union levy of 2s. 6d. per month from their employees' wages is an interesting development. Talks between the managements and the union leaders are proceeding. Details of the Kansanshi borehole result report interesting reef intersections at a depth of between 300 and 400 ft. caused a sharp rise in the values of Rhodesian Katanga shares.

Malayan and Nigerian tins were quiet but very steady on the higher metal price. Reports from Malaya indicate that unless some international tin agreement is arrived at, many more Chinese owned mines may have to close down. A feature in this market was the fall in Beralts. The company is paying 180 per cent for the year against 200 per cent last year. This is good in the circumstances, and the decline is due more to uncertainty over the outlook for wolfram and tin rather than the technical and financial position of the company, which is sound.

Elsewhere the chief interest was the Wankie Colliery issue. The new ordinary shares opened at around 6d. premium and the Debentures at ½ per cent premium. Fears of slow developments have checked buyers.

	Price	+ or —
FINANCE	Sept. 2	on week
African & European	2 5/16	—1/16
Anglo American Corpn.	5 1/16	—1/2
Anglo-French	18/-	—1 1/4d
Anglo Transvaal Consol.	21/3	.....
Central Mining (£1 shrs.)	28/9	.....
Consolidated Goldfields	49/-	+3/3
Consol. Mines Selection	25/-	—7 1/4d
East Rand Consols	2/7 1/4	+1 1/4d
General Mining	3 1/8	—1/4
H.E. Prop	38/9	.....
Henderson's Transvaal	7/6	.....
Johnnies	54/6	+2/6
Rand Mines	3 1/2	.....
Rand Selection	31/10 1/2	+7 1/2d
Strathmore Consol.	30/-	.....
Union Corp. (2/6 units)	27/3	—6d
Vereeniging Estates	3 1/32	—1/16
Writs	33/9	.....
West Wits	41/10 1/2	—7 1/2d
RAND GOLD		
Blyvoors	40/3	+6d
Brakpan	11/-	.....
City Deep	19/4 1/2	—1 1/2d
Consol. Main Reef	19/4 1/2	+7 1/2d
Crown	33/1 1/2	.....
Daggas	3 1/16	.....
Doornfontein	21/6	—3d
Durban Deep	35/7 1/2	.....
E. Daggas	13/6	+6d
E. Geduld (4/- units)	31/3	—1/9
E. Rand Props	2 1/32	+1/16
Geduld	4 1/16	—1/16
Govt. Areas	12/3	—3d
Grootvlei	21/9	—9d
Libanon	9/6	.....
Luipaards Vlei	21/9	.....
Marievale	18/6	.....
Modderfontein East	17/6	.....
New Kleinfontein	19/3	—3d
New Pioneer	17/9	+3d
Randfontein	41/6	—9d
Robinson Deep	11/-	+3d
Rose Deep	13/-	—1 1/2d
Simmer & Jack	4/9	.....
S.A. Lands	23/9	.....
Springs	4/6	+1 1/2d
Stilfontein	27/3	—7 1/2d
Sub Nigel	2 1/2	.....
Van Dyk	6/-	+3d
Venterspost	12/6	—3d
Vlakfontein	14/-	.....
Vogelstruisbult	32/3	.....
West Driefontein	6 1/2	+1/32
W. Rand Consolidated	2 1/32	.....
Western Reefs	2 1/32	—1/32
O.F.S.		
Freddies	10/3	—1 1/2d
Freddies N.	10/-	+3d
Freddies S.	9/7 1/2	+4 1/2d
F. S. Geduld	2 1/2	+1/2
Geoffries	14/9	+3d
Harmony	23/-	—9d
Loraine	8/6	—1 1/2d
Lydenburg Estates	12/-	.....
Merriespruit	8/6	—3d
Middle Wits	15/3	.....
Ofsits	35/7 1/2	—4 1/2d
President Brand	27/11 1/2	—6d
President Steyn	22/-	+4 1/2d
St. Helena	12/10 1/2	.....
Virginia Ord.	12/1 1/2	—4 1/2d
Welkom	19/10 1/2	—4 1/2d
Western Holdings	3 17/32	.....
WEST AFRICAN GOLD		
Amalgamated Banket	1/11 1/2	+2 1/2d
Ariston	6/3	.....
Ashanti	22/-	+3d
Bibiani	5/9	.....
Bremang	2/3	.....
G.C. Main Reef	3/7 1/2	.....
G.C. Selection Trust	6/4 1/2	.....
Konongo	2/6	—1 1/2d
Lyndhurst Deep	1/-	.....
Marlu	1/4 1/2	.....
Taquah & Abosso	3/9	.....
AUSTRALIAN GOLD		
Boulder Perseverance	2/6	.....
Gold Mines of Kalgoorlie	13/6	—9d
Great Boulder Prop.	10/-	.....
Lake View and Star	14/3	—9d
Mount Morgan	17/6	—3d
North Kalgurli	7/-	.....
Sons of Gwalia	6/3	.....
South Kalgurli	6/10 1/2	.....
Western Mining	13/3	—1 1/2d
MISCELLANEOUS GOLD		
Cam and Motor	9/6	+3d
Champion Reef	4/10 1/2	—1 1/2d
Falcon Mines	6/6	+4 1/2d
Globe & Phoenix	25/3	.....
G.F. Rhodesian	5/-	.....
London & Rhodesian	5/-	.....
Motapa	1/6	.....
Mysore	3/1 1/2	+1 1/2d
Nundydroog	6/1 1/2	.....
Ooregum	4/3	.....
Oroville	11/6	—3d
MISCELLANEOUS GOLD (contd.)		
St. John d'El Rey	26/6	+1/-
Zams	25/3	.....
DIAMONDS & PLATINUM		
Anglo American Inv.	3 19/32	+1/32
Casts	20/-	.....
Cons. Diam. of S.W.A.	4 1/2	+1/8
De Beers Defd. Bearer	64/3	+6d
De Beers Pfd. Bearer	15 1/2	+1/2
Pots Platinum	7/3	—6d
Watervaal	12/3	—3d
COPPER		
Chartered	52/7 1/2	+4 1/2d
Esperanza	4/3	—1 1/2d
Indian Copper	4/-	.....
Messina	3 19/32	—1/32
Nchanga	6 13/32	+1/32
Rhod. Anglo-American	49/6	+9d
Rhod. Katanga	9/3	+1/9
Rhodesian Selection	14/10 1/2	+6d
Rhokana	18 7/32	+1/16
Rio Tinto	19 1/2	—1/4
Roan Antelope	13/3	.....
Selection Trust	32/6	.....
Tanks	57/6	—1/-
Tharsis Sulphur Br.	41/3	.....
TIN (Eastern)		
Ayer Hitam	24/9	—3d
Bangrin	7/10 1/2 XD	—4 1/2d
Gopeng	7/10 1/2 XD	—4 1/2d
Hongkong	6/3	.....
Ipoh	14/4 1/2	.....
Kamunting	8/-	.....
Kepong Dredging	4/4 1/2	.....
Kinta Tin Mines	10/1 1/2	+1 1/2d
Malayan Dredging	22/6	.....
Pahang	13/1 1/2	+4 1/2d
Pengkalen	8/-	.....
Petaling	8/9	.....
Rambutan	10/-	—6d
Siamese Tin	8/7 1/4 XD	—4 1/2d
Southern Kinta	12/6	.....
S. Malayan	22/6	+6d
S. Tronoh	8/1 1/2	.....
Sungei Kinta	10/-	.....
Tekka Taiping	4/9	.....
Tronoh	22/6	.....
TIN (Nigerian and Miscellaneous)		
Amalgamated Tin	9/4 1/2	+3d
Beralt Tin	27/6	—1/6
Bisichi	3/10 1/2	.....
British Tin Inv.	13/4 1/2	—1 1/2d
Ex-Lands Nigeria	3/7 1/2	.....
TIN (Nigerian and Miscellaneous) contd.		
Geevor Tin	10/-	.....
Gold & Base Metal	3/4 1/2	—1 1/2d
Jantar Nigeria	14/10 1/2	+4 1/2d
Jos Tin Area	11/3	.....
Kaduna Prospectors	2/3	+3d
Kaduna Syndicate	2/3	+3d
London Tin	5/-	+1 1/2d
United Tin	2/3	.....
SILVER, LEAD, ZINC		
Broken Hill South	2 1/16	.....
Burma Mines	1/4 1/2	—1 1/2d
Consol. Zinc	25/-	—9d
Lake George	9/6	—3d
Mount Isa	32/9	.....
New Broken Hill	22/4 1/2	—1 1/2d
North Broken Hill	2 1/16	—7 1/2d
Rhodesian Broken Hill	10/7 1/2	.....
San Francisco Mines	18/3	—6d
Uruwira	2/9	—1 1/2d
MISCELLANEOUS		
BASE METALS & COAL		
Amal. Collieries of S.A.	44/3	—3d
Associated Manganese	47/9	+3d
Cape Asbestos	21/6	.....
C.P. Manganese	54/4 1/2	—7 1/2d
Consol. Murchison	22/7 1/2	—1 1/2d
Mashaba	4 1/2d	.....
Natal Navigation	3 1/8	.....
Rhod. Monteleo	4/3	—9d
Turner & Newall	55/6	+3d
Wankie	10/6 XR	—1/9
Witbank Colliery	3 1/32 XD	.....
CANADIAN MINES		
Dome	$30	—2 1/2
Hollinger	$24 1/2	—1 1/2
Hudson Bay Mining	$76	—2
International Nickel	$71 1/2	—1 1/2
Mining Corpn. of Canada	£4	—1/2
Noranda	$123	—1
Quemont	£6 1/2	—1/2
Yukon	3/6	—6d
OIL		
Anglo-Iranian	7 1/2	+1/2
Apex	38/9	.....
Attock	33/9	—3d
Burmah	55/7 1/2	+1/7 1/2
Canadian Eagle	28/1 1/2	—7 1/2d
Mexican Eagle	22/-	.....
Shell (bearer)	4 1/32	+1/16
Trinidad Leasehold	27/3	+3d
T.P.D.	23/6	—3d
Ultramar	26/6	+6d

COMPANY NEWS AND VIEWS

Anglo American Corporation to Acquire Shares of New Era

Anglo American Corporation of South Africa, in a circular to shareholders of New Era Consolidated, announced their proposal to offer New Era shareholders 35s. 3d. per 5s. share for their holdings, of which 34s. 6d. is to be utilized in the subscription of Anglo American ordinary 10s. shares at 115s. per share, the balance of 9d. per share to be paid out in cash. The net result of this offer by Anglo American Corporation is that shareholders in New Era Consolidated will receive three Anglo American Corporation ordinary shares for every ten New Era shares held, and in addition will receive 9d. cash per New Era share surrendered. New Era shareholders who accept this offer will not participate in the 20 per cent interim dividend now declared in respect of the year ending December 31, 1953. Should all the New Era shareholders accept Anglo American Corporation's offer, and ignoring fractional shares, the Corporation will have to issue 330,000 of its reserve ordinary shares.

Wankie Colliery's New Share Issue

Wankie Colliery in a circular to shareholders issued at the end of last week published details of the issue of shares and debenture stock for financing the company's expansion programme.

Shareholders are being offered 2,206,250 new 10s. shares at par in the ratio of one new share for every three shares held and £3,500,000 5½ per cent First Mortgage Debenture Stock 1962-1978 at 98, in the ratio of one £20 debenture stock unit for every 40 shares held, or part thereof.

Debenture stockholders will have the option during 1957 to convert 25 per cent of each £20 stock unit into ten fully paid shares of 10s. each at par

The offers are being made to members registered at the close of business on July 30 last who may also apply for any debenture stock not needed to meet rights requirements. The issue of both shares and debenture stock has been underwritten jointly by Anglo American Corporation of South Africa and Erlangers for a cash commission of 2½ per cent on the issue price of the shares and the nominal amount of the debenture stock.

While the debenture stock issue with its conversion rights has attractions for the investor, it is difficult to say the same for the ordinary issue and it will be interesting to see what proportion of the latter is left with the underwriters.

Kansanshi Needs More Capital

The Rhodesia-Katanga company have announced that it is now estimated that the total expenditure on the whole programme of exploration at the Kansanshi mine in Northern Rhodesia will amount to £338,750, or approximately £200,000 more than was raised by the initial issue of shares for cash, when the Kansanshi Copper Mining Company was floated. According to the progress report now issued, it has been agreed that the additional capital shall be provided by an interest-free loan to be advanced by the parties who subscribed for the initial issue, *pro rata* to their shareholding.

The Kansanshi mine is under option to the newly formed Kansanshi Copper Mining Company now owned by the Rhodesia-Katanga Company who, in a previous progress report, said that the option was not likely to be exercised until the end of 1955. In the progress report now published it is stated that if the option is exercised, the new loan will be repaid from the additional capital amounting to £368,750 which will be raised by a further share issue at par under the terms of the flotation agreement. Should, however, the remaining cash available be insufficient to enable Kansanshi Copper to repay Rhodesia-Katanga the whole of the £250,000 cash involved in vendor consideration, the balance will be a first charge on the capital then to be issued by Kansanshi Copper to finance further developments.

In a later announcement it was stated that an inclined borehole had intersected at a vertical depth of between 300 and 400 feet a series of mineralized copper veins which "appear to be important and encouraging." Assay results are not yet available and further boreholes will be necessary before it could be determined whether the intersection had any quantitative significance. Be that as it may, the market took the news as "important and encouraging" and the Rhodesia Katanga £1 shares advanced sharply.

Indian Copper's Lighter Tax Burden

Indian Copper Corporation, in a preliminary profits statement covering the year 1952 has announced the payment of 12½ per cent, tax free, per 2s. share on the £914,200 issued capital.

Year to Dec. 31	*Working Profit*	*Taxation*	*Net Profit*	*Dividend**	*To Reserve*	*Carry Forward*
	£	£	£	%	£	£
1952	687,180	265,347	421,833	12½	185,000	93,098
1951	889,712	455,000	434,712	12½	175,000	85,540

* Free of tax.

The transfer of the company's seat of control and management from this country to India effected on April 6, 1952, is reflected in the considerably lower offtake in taxation which imparted a more healthy look to the net profit figure which did not fall far short of that attained in the preceding year. The dividend distribution required £114,275 and after strengthening reserves by the allocation of £185,000, the carry forward was left some £7,500 stronger than in the preceding year.

Meeting, Royal Exchange Hall, Royal Exchange, Calcutta, November 25.

Tekka-Taiping's Difficult Year

Shareholders of Tekka-Taiping were forewarned that the results expected during the year to October 31 last — both technically and financially — would not compare with those obtained in the preceding year.

Year to Oct. 31	*Treated*	*Per Cubic Yard Yield*	*Cost*	*Output*	*Per Ton Cost*	*Tin Ore Price*
	(*cu. yd.*)	(*lb.*)	*s. d.*	(*tons*)	£	£
1952	1,472,650	0.25	1 6	169	663	564
1951	1,927,600	0.25	0 10	215	388	633

The stoppage of the dredge for the last three months of the year, the much lower average price of tin, and the low grade of ground worked all left their mark on the year's results as can be seen from the above table showing operational results for the last two financial years.

Year to Oct. 31	*Mining Revenue*	*Mining Costs*	*Taxation*	*Net Profit*	*Dividend*	*Carry Forward*
	£	£	£	£	%	£
1952	141,519	134,639	10,172	13,708*	5	35,012
1951	221,910	118,478	65,822	44,981	10	36,101

* Including a net payment of £10,492 representing 75 per cent of War Damage Award.

The combined effect of these three adverse features on production costs, which is reflected under the heading of mining costs, was a real broadside and sunk any hopes there may have been to present results anywhere near those achieved in the preceding year.

During the first five months of the current year production at 171 tons compared with 136 tons in the corresponding period during the year under review. But since then the dredge has been working in low grade ground and production has fallen. The General Managers' report that the dredge will continue to work low grade ground during the current year so that unless the tin price rises rapidly the outlook for Tekka-Taiping during the current year cannot be described as bright.

Kinta Kellas' Big Profit Contraction

The profit and loss account of Kinta Kellas for the year ended March 31, 1953, showed a profit before tax of £609 compared with £45,625 in the preceding year. No dividends have been paid (20 per cent), there were no tax liabilities (£21,035) and the carry forward was £11,162 against £10,553 brought in.

The report and accounts will be dealt with in greater detail in next week's issue.

Beralt Pays 180 Per Cent

The preliminary profit statement issued by Beralt Tin and Wolfram announced a final dividend for the year ended March 31 last of 100 per cent per 5s. stock unit on the issued capital of £331,000, making a total distribution for the year of 180 per cent compared with 200 per cent in the preceding year.

Year to Mar. 31	*Production WO_3 (tons conc.)*	*Tin*	*Working Profit* £	*Taxation* £	*Net Profit* £	*Dividend* %	*Carry Forward* £
1953	2,127	144	1,369,496	906,678	462,818	180	220,719
1952	2,388	88	2,174,969	1,336,570	838,399	200	178,509
1951	1,760	139	892,294	534,251	358,043	100	137,660

Results for the year under review do not, of course, compare with those achieved in 1951-52 which covered the period during which prices of wolfram and tin were at their peak levels. Nevertheless the profit figures must be considered eminently satisfactory and were, no doubt, assisted to some extent by the long-term contracts concluded between the company and the U.S. and U.K. governments. The heavy tax burden borne by the company presumably includes E.P.L. liabilities which were probably incurred at the maximum of 10 per cent of the total profits. In any event, shareholders fared exceedingly well considering that profits after tax were nearly halved.

For the first four months of the current year the output of wolfram was 720 tons and that of tin 32 tons which compares with 748 tons wolfram and 45 tons tin produced in the corresponding period of the year under review.

Filani (Nigeria) Tin Pays More

The Filani (Nigeria) Tin Mining Company, in a preliminary profits statement, have announced a net profit, after all charges including the provision of £13,503 (£7,918) for taxation, of £7,313 compared with £5,965 in 1951. The better results announced are no doubt due to the increase in the tin output which advanced to 83 tons compared with 54 tons in 1951.

The company is paying a final dividend of 6¼ per cent tax free, making 11¼ per cent tax free compared with 10 per cent in the preceding year. The sum of £1,000 (same) was written off mining leases, £2,000 against £1,000 was allocated to general reserve and nil against £1,000 was written off investments. The carry forward at the company's financial year end was £6,376 compared with £5,044 brought in.

Final dividend warrants will be posted on October 13.

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NOTICE TO HOLDERS OF ORDINARY SHARES

DIVIDEND No. 34

NOTICE IS HEREBY GIVEN that Dividend No. 34, equal to 2s. per share, has been declared as an interim dividend in respect of the year ending December 31, 1953, payable to shareholders registered in the books of the Corporation at the close of business on September 17, 1953, and to persons presenting Coupon No. 37 from Share Warrants to Bearer.

The dividend is declared in the currency of the Union of South Africa and becomes due on September 18, 1953. Warrants will be posted from the Head and London Offices of the Corporation on or about October 21, 1953.

The dividend is payable subject to the usual conditions, which can be inspected at the Head and London Offices of the Corporation.

The Ordinary Share Transfer Books and Register of Members will be closed from September 18 to September 25, 1953, both days inclusive.

Holders of Share Warrants to Bearer are notified that the dividend is payable at Barclays Bank (Dominion, Colonial and Overseas), Circus Place, London Wall, E.C.2, or at the Banque de l'Union Parisienne, 6 and 8 Boulevard Haussmann, Paris, or at the Banque Lambert, 2 Rue d'Egmont, Brussels, on or about October 22, 1953. Coupons must be left four clear days for examination.

The effective rate of Non-resident Shareholders' Tax is 6.225 per cent.

By Order of the Board,

W. E. GROVES,
London Secretary.

London Office:
11 Old Jewry, London, E.C.2.
August 31, 1953.

WANTED—For MINERAL RESOURCES DEVELOPMENT CORPORATION, an Agency of THE GOVERNMENT OF THE UNION OF BURMA, for positions of Departmental Head.

1. MINING ENGINEER

Qualifications: University Degree in Metalliferous Mining or similar qualification. Several years' practical experience of exploration, development and operation in metalliferous mining, both underground and open pits. Some experience of heavy construction. Should have had administrative experience.

Duties: Examination and valuation of mineral prospects. Exploration of mineral deposits by drilling, boring, etc. Preparation of mine and plant designs. Supervision of construction work.

2. MINING ENGINEER (COAL)

Qualifications: University Degree in Mining or equivalent qualification. Several years' experience of exploration, development and operation in coal mining. Adequate experience of coal washeries and carbonization, briquetting, calcining and coking plants. Should have had administrative experience.

Duties: Examination and valuation of coal prospects. Exploration of coal desposits by drilling, etc. Preparation of mine and plant designs for a coal mine under consideration. Supervision of construction work on mine and plant.

3. NON-FERROUS METALLURGIST

Qualifications: University Degree in Metallurgy or equivalent qualification. Adequate experience of methods of ore dressing, smelting and refining. Extensive plant design experience. Should be familiar with the use of electrolytic and electrothermic processes in the reduction of zinc and with oxidation and reduction of antimony.

Duties: Advice on methods of beneficiation of low grade ores and on setting up of smelting and refining industries in zinc, tin, antimony and cobalt, and extraction of sulphuric acid from smelting and industrial gases. Setting up of pilot plants. Supervision of any construction work on smelting and refining plants.

4. ECONOMIC GEOLOGIST

Qualifications: University Degree. Familiarity with modern methods of geophysical exploration. Adequate experience of calculation of ore reserves.

Duties: Reconnaissance surveys, exploration and geological mapping. Economic appraisal of mineral resources.

APPLY TO The Director-General, Mineral Resources Development Corporation, Secretariat, Rangoon, Burma, with references giving full particulars of age, education, qualifications and experience (in chronological order), stating salary and terms required.

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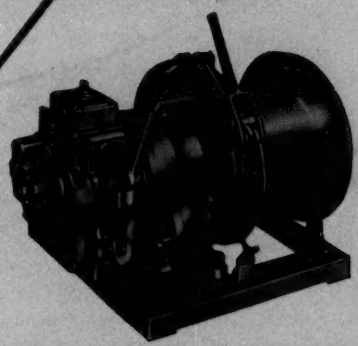
Holman Hoists and Haulages are tough and reliable enough to take on almost any type of handling duty. In damp and dirty conditions, even in unskilled hands, they will give lasting, good service with the minimum of servicing. Widely recommended for spotting railway wagons, operating tub tipplers, hauling cables in trenches, etc., each Holman Hoist is designed to handle a stated pull with the rope on the mid-coil. The range includes Air Winches (HYA, HYLA, HD, HJA, R.W.), a single Drum Electric Winder (E.G.) and a Portable Haulage (HF).



R.W. ROTOWINCH. Portable, light and economical. May be bolted down or clamped to column. High-starting torque. Reversing and non-reversing models.

SYMBOL	MOTOR	DRUM CAPACITY ft.	ROPE PULL lb. at 80 lb. sq. in.	WEIGHT lb.
HYA	5 H.p.	260/⅜"	1240/120 ft. min.	315
HYLA	5 H.p.	410/⅜"	1240/120 ft. min.	357
HD	5 H.p.	Endless Rope	5000/16 ft. min.	415
HJA	7½ H.p.	410/⅜"	1800/120 ft. min.	392
R.W.	10 H.p.	1000/⅜"	3000/100 ft. min.	710
* E.G.	25 H.p.	1000/½"	2600/300 ft. min.	680 Mech. Portion
† HF	7½ H.p. 10 H.p.	870/½" 870/½"	2000/125 ft. min. 2000/165 ft. min.	Mech. 716 Portion 716

* E.G. is available for electric drive only.
† HF is available for electric, air and diesel drives.

Further information, together with performance curves showing stalling loads, promptly available on request.

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